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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,975	07/23/2001	Yukio Maki	57454-162	2289

7590 04/20/2005

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EXAMINER	
OWENS, DOUGLAS W	

ART UNIT	PAPER NUMBER
2811	

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SM

Office Action Summary	Application No.	Applicant(s)	
	09/909,975	MAKI, YUKIO	
	Examiner	Art Unit	
	Douglas W. Owens	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 7, 2005 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3 and 4 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,117,721 to Dennison et al.

Regarding claim 1, Dennison et al. teach an SRAM including:

a semiconductor substrate (100);

an access MOS transistor formed on an active region bounded by an isolation region (110, 112), wherein the active region is inclined downward toward said isolation region (Figs. 4 – 14, for example); and

a driver MOS transistor (16, 17, 30, 32).

Dennison et al. further inherently teach that an entire surface of the active region is entirely rounded since the method of forming the field oxide regions on each side of the active region is identical to that of the claimed invention. Dennison forms a buffer (pad oxide) on a substrate, followed by a nitride film and patterning. Dennison then forms the field oxide and bird's beak extending into the active region (See Col. 4, lines 15 – 47). The method of forming the device taught by Dennison et al. is identical to the method of the instant application. Accordingly, the resultant device would have to be identical.

Regarding claim 3, Dennison et al. teach an SRAM, wherein

an isolation insulating film (110, 112) is formed in the isolation region;

said isolation insulating film includes a bird's beak portion extending on the active region (Fig. 9, for example); and

said active region is covered with the bird's beak portion.

Regarding claim 4, Dennison et al. teach an SRAM, wherein the bird's beak portion has a larger thickness near the isolation region than in a center of the active region.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dennison et al. as applied to claims 1, 3 and 4 above, and further in view of US patent No. 5,285,096 to Ando et al.

Dennison et al. do not teach a semiconductor device, wherein the gate insulating film of the access MOS transistor is thicker than the gate insulating film of the driver MOS transistor. Nor do Dennison et al. teach an access MOSFET with a shallower doing depth than that of the driver MOS transistor.

Ando et al. teach a semiconductor device (Fig. 4, for example), wherein the access MOS transistor has a thicker gate insulator (3b) than the gate insulator (3a) of the driver MOS transistor. It would have been obvious to one of ordinary skill in the art at the time the invention was made, to incorporate the teaching of Ando et al. into the device taught by Dennison et al. since it is desirable to ensure high stability of the memory cell (Ando, Col. 3, lines 15 – 34). Furthermore, if the suggested modification had been made to the device taught by Dennison, the resulting gate insulator for the access MOS transistor would have consumed more of the silicon substrate than the gate insulator of the driver MOS transistor. This modification would have inherently produced a shallower doping depth.

Response to Arguments

6. Applicant's arguments filed February 7, 2005 have been fully considered but they are not persuasive.

Applicant argues that Examiner has not shown a factual basis upon which inherency necessarily flows from. It has been shown that the method of manufacturing

employed by Dennison et al. is identical to the method of the instant application. The two identical processes would have necessarily produced identical products. Examiner has provided evidence and reasoning to show inherency based on factual data. Accordingly, the burden rests with Applicant to show an unobvious difference between the prior art and the instant application. Applicant has failed to discharge that burden (See MPEP 2112 V.).

Applicant further asserts that Fig. 4 of Dennison et al. does not show that the entire surface is rounded. There is nothing in the disclosure to indicate that the drawings are scale drawings. Moreover, there is no requirement that an inherent feature be recognized at the time of the invention. The method of Dennison et al., being identical to that of the instant application would have resulted in an identical device.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas W. Owens whose telephone number is 571-272-1662. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Douglas W. Owens

Douglas W Owens
Examiner
Art Unit 2811

DWO